

Listing of Claims:

This listing of claims reflects all claim amendments and replaces all prior versions, and listings, of claims in the application (material to be inserted in amended claims is in **bold and underline**, and material to be deleted is in ~~[brackets and strikeout]~~). In brief, claims 1, 3, and 9 have been amended, claims 46-48 have been canceled, and claim 59 has been added, relative to applicants' previous amendment (dated September 3, 2002).

1. (Currently Amended) A system for delivering fluid to a sample holder comprising

a fluid source,
a positive displacement pump connected to the fluid source,
a dispenser assembly having an orifice, and
a conduit path extending from the pump to the orifice of the dispenser assembly,
wherein **operation of the positive displacement pump** ~~[the system is configured to]~~ provides non-contact deposition of fluid aliquots having a volume of less than about 5 microliters per aliquot without closing or constricting the conduit path between the deposition of successive fluid aliquots.

2. (Original) The system of claim 1 further comprising a controller that determines the volume of each fluid aliquot.

3. (Currently Amended) The system of claim 1, wherein the pump ~~[device]~~ pumps incrementally at a rate corresponding to the rate of aliquot deposition.

4. (Original) The system of claim 1, wherein the dispenser assembly has a hydrophobic tip portion.

5. (Original) The system of claim 4, wherein the tip portion is made of a heat-shrinkable material.

6. (Original) The system of claim 5, wherein the tip portion is made of material selected from the group consisting of PTFE, polypropylene, polyethylene, and FEP.

7. (Original) The system of claim 1, wherein the dispenser assembly has a tip portion made of sapphire.

8. (Original) The system of claim 1, wherein the orifice is formed at an end of a tube-like tip portion, the tip portion having a wall thickness around the orifice of less than about 8 thousandths of an inch.

9. (Currently Amended) The system of claim 1, wherein the orifice has an inner diameter of less than about **200 microns** [~~200-microns~~].

10. (Previously Amended) The system of claim 8, wherein the pump is connected to the dispenser assembly by a tube having a distal end, the tip portion having a flange on a proximal end, the distal end of the tube being held in contact with the flange of the tip portion.

11. (Original) The system of claim 1, wherein the pump is a syringe pump.

12. (Original) The system of claim 11, wherein the syringe pump has a linear motor.

13. (Original) The system of claim 11, wherein the pump has a stepper motor.

14. (Original) The system of claim 10, wherein the dispenser assembly includes a manifold for holding the distal end of the tube in contact with the flange of the tip portion.

15. (Original) The system of claim 14, wherein the same manifold secures connection of a plurality of tubes to respective tip portions to define an array of fluid dispensing channels.

16. (Original) The system of claim 15, wherein the array of fluid dispensing channels corresponds to an array of wells in a microplate.

17. (Original) The system of claim 15, wherein the array of fluid dispensing channels corresponds to an array of sites on a biochip.

18. (Original) The system of claim 15, wherein the array corresponds to wells in a standard 96-well microplate.

19. (Original) The system of claim 15 further comprising a sample holder registration mechanism that alters the position of a sample holder relative to the manifold so that the same array of fluid dispensing channels can be used to deposit fluid into sample holders having varying densities of deposition sites.

20-29 (Previously canceled, without prejudice)

30. (Previously Amended) A fluid dispensing system comprising
an array of at least eight dispense tips, each dispense tip being connected to a separate syringe pump,

a fluid source bank, the fluid source bank having plural fluid reservoirs, and
a changeable fluid conduit network capable of permitting: (a) each of at least eight of the pumps to be connected to a separate fluid reservoir, (b) each of at least eight of the pumps to be connected to the same fluid reservoir, and (c) any subset of pumps to be connected to the same fluid reservoir while one or more other pumps are connected to another fluid reservoir.

31. (Original) The system of claim 30, wherein the dispense tips are configured to dispense droplets in a range of volumes including volumes of less than about 5 microliters per droplet without contacting the droplet to a surface.

32. (Original) The system of claim 31, wherein each dispense tip has a hydrophobic wall defining an orifice having a diameter of less than about 200 microns, the wall having a thickness of less than about 8 thousandths of an inch.

33. (Original) The system of claim 30, wherein the dispense tips are made of a material selected from the group consisting of sapphire, PTFE, polypropylene, polyethylene, and FEP.

34. (Original) The system of claim 30, wherein each pump includes a linear motor.

35. (Previously Amended) A device for dispensing fluid to a sample or sample holder, the device comprising

a fluid reservoir,

a syringe pump device connected to the fluid reservoir, and

a dispense element operatively connected to the pump device, wherein the pump device drives fluid incrementally to the dispense element with sufficient velocity and acceleration so that a fluid aliquot of less than about five microliters separates from the dispense element without contacting the sample or the sample holder.

36. (Original) The device of claim 35, wherein the dispense element has a hydrophobic tip with a tube-like wall defining an orifice and is configured to reduce the affinity of dispensed fluid for the dispense element, so that dispensed fluid separates from the dispense element.

37. (Original) The device of claim 36, wherein the wall of the tip has a thickness of less than about 8 thousandths of an inch.

38. (Original) The device of claim 36, wherein the orifice has a diameter of less than about 200 microliters.

39. (Original) The device of claim 35, wherein the dispense element has a tip portion made of a material selected from the group consisting of PTFE, polypropylene, polyethylene, and FEP.

40-45 (Previously canceled, without prejudice)

46-48 (Currently canceled, without prejudice)

49-58 (Previously canceled, without prejudice)

59. (New) A fluid dispensing system comprising
an array of at least eight dispense tips, each dispense tip being connected to a separate syringe pump,
a fluid source bank, the fluid source bank having plural fluid reservoirs, and
a changeable fluid conduit network capable of permitting: (a) each of at least eight of the pumps to be connected to a separate fluid reservoir, and (b) each of at least eight of the pumps to be connected to the same fluid reservoir.